

A method and apparatus for providing layer-independent secure network communication is provided. According to an embodiment of the invention, a transmission medium is provided between a first network node and a second network node. Both the first network node and the second network node support at least one common communication protocol. A Java output stream is established between a first process executing on the first network node and the transmission medium. Also, a Java input stream is established between a second process executing on the second multi-layered node and the transmission medium. Data to be transmitted from the first process to the second process is encrypted by the first process and written to the Java output stream. The data is transmitted to the second network node. Then the data is read from the Java input stream by the second process and decrypted.